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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/932,161	08/17/2001	Olivier Civelli	P-UC 4679	5376

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EXAMINER	
DEBERRY, REGINA M	

ART UNIT	PAPER NUMBER
1647	11

DATE MAILED: 11/03/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/932,161	CIVELLI ET AL.	
	Examiner	Art Unit	
	Regina M. DeBerry	1647	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *04 August 2003* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-15,34 and 35* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) *11 and 12* is/are allowed.

6)☒ Claim(s) *1-10,13-15 and 34* is/are rejected.

7)☒ Claim(s) *35* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *8* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

Status of Application, Amendments and/or Claims

The information disclosure statement filed 09 May 2003 (Paper No. 8) was received and complies with the provisions of 37 CFR §§1.97 and 1.98. It has been placed in the application file and the information referred to therein has been considered as to the merits.

The amendment filed 04 August 2003 (Paper No. 10) has been entered in full. Claims 16-33 were cancelled. New claims 34-35 were added. Claims 1-15, 34 and 35 are under examination.

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 USC § 112, First Paragraph, Scope of Enablement

Claims 1, 2, 15 and 34 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for:

1. a method of screening for a compound for promoting wakefulness in a mammal, comprising:

(a) **providing a compound** (b) determining the ability of said compound to promote wakefulness,

wherein step (a) comprises contacting a PrRP receptor with one or more candidate compounds under conditions wherein PrRP promotes **calcium ion mobilization and arachadonic acid metabolite release**, identifying a compound that

promotes **calcium ion mobilization and arachadonic acid metabolite releas** , and providing said compound.

a method of promoting wakefulness in a mammal, comprising administering to a mammal an effective amount of a **PrRP**,

does not reasonably provide enablement for:

a method of screening for a compound for promoting wakefulness in a mammal, comprising:

(a) providing a compound that is a **PrRP receptor agonist** (b) determining the ability of said compound to promote wakefulness,

wherein step (a) comprises contacting a PrRP receptor with one or more candidate compounds under conditions wherein PrRP promotes **a predetermined signal**, identifying a compound that promotes said **predetermined signal**, and providing said compound or

a method of promoting wakefulness in a mammal, comprising administering to a mammal an effective amount of a **PrRP receptor functional analog or PrRP receptor agonist**.

The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention commensurate in scope with these claims. The basis for this rejection is set forth at pages 3-5 of the previous Office Action (11 April 2003; Paper No. 7).

Applicants submit that the specification provides enablement for the full scope of claim 15, for example by teaching multiple exemplary PrRP receptor agonists that would

have been used by those skilled in the art for practicing the claimed method. Applicants cite pages for exemplary PrRP receptor agonists and for identifying PrRP agonists. Applicants state that the specification teaches structural features of PrRP receptor agonists required to provide activity. In response to the Office Action which asserts that claim 15 fails to recite any structural or functional limitations for the PrRP receptor agonists, Applicants submit that the recited PrRP receptor agonists has the functional characteristics of selectively promoting or enhancing normal signal transduction through the PrRP receptor. Applicants maintain that regardless of the assay used to identify PrRP receptor agonists, the identified agonist would be expected to work in the claimed method. Applicants maintain that PrRP variants that retain characteristics of PrRP receptor agonists would have been made and used by those skilled in the art for use in the claimed method.

Applicants' arguments have been fully considered but not deemed persuasive. The terms "PrRP receptor agonist" or "PrRP functional analog" encompass *any* chemical, compound, protein, nucleic acid, lipid, etc. that binds the PrRP receptor and promotes wakefulness in mammals. PrRP agonist or functional analog also encompass *any* chemical, compound, protein, nucleic acid, lipid, etc. that potentates the binding activity of PrRP or signaling activity of PrRP receptor. The terms PrRP receptor agonist and PrRP functional analog encompass a large genus. The instant specification fails to indicate that a representative number of *structurally* related compounds are disclosed and therefore, the artisan would not know the identity of a reasonable number of representative compounds falling within the scope of the instant claim and would not

know how to make them. The specification does not address how to *make* chemicals, compounds, nucleic acid, lipids, macromolecules, etc that would bind PrRP receptor, or potentate the binding of PrRP or signaling activity of PrRP in a mammal to cause calcium ion mobilization, arachadonic acid metabolite release or wakefulness. The subject matter sought to be patented as defined by the claims is not supported by an enabling disclosure because the instant claims encompass a genus of compounds defined **only by function**. The skilled artisan would not know how to make and use compounds that lack structural definition.

The specification teaches a motif that is not claimed (various species of PrRP peptides comprising SEQ ID NO:23). Thus, the examples to which Applicants refers are not commensurate with the scope of compounds encompassed by the claim. Lastly, the specification is only enabled for calcium ion mobilization and arachadonic acid metabolite release. The specification teaches specific readouts for the binding of PrRP to PrRP receptor. The claims as recited, encompass any signal, as any signal can be "predetermined signal". The evidence as a whole indicates that the rejection should be maintained.

Claim Rejections - 35 USC § 112, First Paragraph, Written Description

Claims 1, 15 and 34 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed,

had possession of the claimed invention. The basis for this rejection is set forth at pages 5-7 of the previous Office Action (11 April 2003, Paper No. 7).

Applicants submit that the specification provides written description sufficient to convey to one skilled in the art that Applicants had possession of the invention of claim 15, which is directed to a method for promoting wakefulness in a mammal by administering a PrRP receptor agonists. Applicants maintain that given the written description of multiple exemplary PrRP receptor agonists and functional attributes of a PrRP receptor agonist disclosed in the specification, it would have been clear to the skilled artisan that Applicants where in possession of the claimed invention at the time the application was filed.

Applicants' arguments have been fully considered but not deemed persuasive. There is insufficient descriptive support for the genus "PrRP receptor agonists" or "PrRP functional analog". The claimed invention requires the use of undisclosed agonist or functional analogs. The specification does not demonstrate possession of the instant process steps that require the use of undisclosed compounds. The claims encompass a genus of compounds defined only by their function wherein the relationship between the structural features of the members of the genus and said function have not been defined. The specification fails to provide a representative number of species to describe the genus of PrRP receptor agonists or PrRP functional analog because PrRP receptor agonists or PrRP functional analog encompasses *any* chemical, compound, protein, nucleic acid, lipid, etc. While the specification provides written description for species of PrRP comprising SEQ ID NO:23 (specification, page 24), it fails to provide

structural evidence information for the genus encompassed by the instant claims. The evidence as a whole indicates that the rejection should be maintained.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 2 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 2 is indefinite in its recitation "predetermined signal". It is unclear how the term "predetermined" limits or defines the signal to be detected. Any signal can be predetermined.

Claim Rejections - 35 USC § 102 (a)

Claims 1, 15, 34 and 35 are rejected under 35 U.S.C. 102(a) as being anticipated by Zhang *et al.*, Society for Neuroscience Abstracts, 1999. The basis for this rejection is set forth at page 7 of the previous Office Action (11 April 2003, Paper No. 7).

Applicants state that Zhang *et al.* does not teach the claimed invention. Applicants states, "specifically, whereas claim 15 is directed to a method for promoting sleep involving administering a PrRP receptor agonist, Zhang *et al.* describes the ability of PrRP to induce sleep". Applicants maintain that Zhang *et al.* further states that at high dose of 10 nmol, PrRP increases nonREM sleep. Applicants state that the specification teaches administration of 10 nmol PrRP to rats significantly decreased total time spent asleep.

Applicants' arguments have been fully considered but not deemed persuasive for the following reasons. Contrary to Applicants' assertion, instant claim 15 is directed to a method for **promoting wakefulness** in a mammal, comprising administering to a mammal an effective amount of a PrRP receptor agonist. Zhang *et al.* state at high doses (10 nmol of PrRP), PrRP did not effect REM sleep, but enhanced nonREM sleep (27.2%). The claim clearly says promote wakefulness. One skilled in the art could interpret those results to mean that the rats are coming out of a deep sleep (REM sleep) into a lighter sleep (nonREM sleep), i.e. promoting wakefulness. The effect seen in the rats of Zhang *et al.* reads on promoting wakefulness in a mammal, comprising administering to a mammal an effective amount of a PrRP receptor agonist. Zhang et al. teaches the limitations of the claims. Because the same exact step would equal the same exact effect, it would be inherent that administered PrRP, as taught be Zhang *et al.*, would have the property of promoting wakefulness. The evidence as a whole indicates that the rejection should be maintained.

Claim Rejections - 35 USC § 103

Claims 1, 13 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zhang *et al.*, Society for Neuroscience Abstracts, 1999 in view of Curran *et al.*, US Patent No. 6,323,177. The basis for this rejection is set forth at pages 7-9 of the previous Office Action (11 April 2003, Paper No. 7).

Applicants submit that the combination of Zhang *et al.* and Curran *et al.* does not teach or suggest the invention of claims 1, 13 and 15. Applicants submit that the

experimental results indicate that PrRP promotes sleep. Curran *et al.* do not cure the deficiencies of Zhang *et al.* in describing the claimed invention. Rather the Curran *et al.* reference describes unrelated screening therapeutic methods. Applicants contend that Zhang *et al.* state that administration of PrRP results in increased sleep at both low and high doses. Applicants assert that based on the results, one skilled in the art would have no motivation to screen PrRP receptor agonists to identify a compound for promoting wakefulness, but instead would have understood that a PrRP receptor agonists promotes sleep.

Applicants' arguments have been fully considered but not deemed persuasive. Contrary to Applicants' assertion, Zhang *et al.* does not state that administration of PrRP results in increased sleep at both low and high doses. Zhang *et al.* states that at low doses (0.1 nmol) of PrRP, REM sleep increased. However, at high doses (10 nmol of PrRP), PrRP did not effect REM sleep, but enhanced nonREM sleep (27.2%). Furthermore, claim 1 recites a method of screening for a compound for promoting wakefulness in a mammal, comprising: *providing a compound that is a PrRP receptor agonist and determining the ability of said compound to promote wakefulness.* The Examiner has already discussed why the results of Zhang *et al.* read on promoting wakefulness. Zhang *et al.* administer a PrRP receptor agonist to a rat (claim 14) and determine the ability of said compound to promote wakefulness (claim 1). Zhang *et al.* use EEG and EMG electrodes to discern activity (claim 13). The Curran reference teaches the general process of screening for compounds and ways of producing large amounts of compounds for screens (column 7, lines 50-63 and column 21, lines 11-53),

but Zhang *et al.* teaches the steps in claims 1, 13 and 14. The evidence as a whole indicates that the rejection should be maintained.

Claims 2-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zhang *et al.*, Society for Neuroscience Abstracts, 1999 and Curran *et al.*, US Patent No. 6,323,177 in view of Roland *et al.*, Endocrinology, 1999 (IDS submitted by Applicant, Paper No. 3). The basis for this rejection is set forth at pages 9-10 of the previous Office Action (11 April 2003, Paper No. 7).

Applicants submit that the combination of Zhang *et al.*, Curran *et al.* and Roland *et al.*, does not teach or suggest the invention of the claims. Applicant incorporates their response to the rejection of claims 1, 13 and 14 under 35 USC 103(a) in response to the rejection of claims 2-10 under 35 USC 103(a). Applicants arguments have been fully considered but are not found to persuasive for the reasons discussed above in the maintained rejection of claims 1, 13 and 14 under 35 USC 103(a). Furthermore, Roland *et al.* teach that PrRP binds PrRP receptor (GP10) and stimulates calcium mobilization in CHOK1 cells transfected with PrRP receptor. Roland *et al.* screened other PrRP receptor agonists for binding, competitive binding with PrRP, and calcium mobilization. The evidence as a whole indicates that the rejection should be maintained.

Allowable Subject Matt r

Claims 11 and 12 are allowable.

Conclusion

Claims 1-10, 13-15, 34 and 35 are rejected.

Claims 11 and 12 are allowable.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Regina M. DeBerry whose telephone number is (703) 305-6915. The examiner can normally be reached on 9:00 a.m.-6:00 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gary Kunz can be reached on (703) 308-4623. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9306 for regular communications and (703) 872-9307 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0196.

RMD
October 21, 2003

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